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Alberta
LABOUR
General Safety Services Division
Electrical Protection Branch

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LEGISLATURE
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S T A T I S T I C S

RE: ELECTRICAL ACCIDENTS IN ALBERTA

1987 04 01 to 1988 03 31

ATTACHED IS:

(1) a summary of electrical accidents in Alberta investigated by the Electrical Protection Branch of Alberta and those investigated and reported to the Branch by Municipal Inspection Authorities from Calgary, Edmonton and Lethbridge during the period 1987 04 01 up to and including 1988 03 31.

Accidents in attachment (1) are chronologically listed in order of their occurrence and include only those where fatalities or injuries resulted.

(2) a summary of power line contacts reported to the Electrical Protection Branch during the period 1987 04 01 up to and including 1988 03 31.

Investigations were conducted when fatalities or injuries occurred and in other instances when warranted.

It is to be noted that the power line contacts involving fatalities or injuries are also indicated in attachment (1). Also, the underground power line contacts involve high voltage cables or equipment only.

G.R. PARENT
TECHNICAL ADMINISTRATOR
CERTIFICATION SECTION

ELECTRICAL PROTECTION BRANCH
ELECTRICAL ACCIDENTS INVESTIGATED
1987 04 01 - 1988 03 31

TOTAL FATAL (F) 7
TOTAL NON-FATAL (N) 63

1. PERSONS INVOLVED

A. PERFORMING ELECTRICAL WORK

	F	N
1. Qualified Electrical Workers	-	17
2. Qualified Power Electricians/ Linemen	-	9
3. Not Qualified Personnel	-	3

B. NOT PERFORMING ELECTRICAL WORK

	F	N
1. Male Persons	7	25
2. Female Persons	-	2
3. Children	-	1

2. VOLTAGES INVOLVED

A. SYSTEMS OR EQUIPMENT (Not Power Line Contacts)

1. 240 Volts or less	-	19
2. 240 Volts to 750 Volts	1	18
3. Over 750 Volts	-	1

B. CONTACT WITH POWER LINES (Not included in A)

1. 750 Volts or less	1	1
2. Over 750 Volts	5	22

3. SYSTEMS OR EQUIPMENT INVOLVED

A. INTERIOR WIRING SYSTEM

1. Service/Distribution Equipment	-	5
2. Motor Control Equipment	-	2
3. Switches, Fixtures, etc.	-	9
4. Test Equipment	-	4
5. General Wiring/Conductors	-	3
6. Other Equipment	-	3

B. LINE CONSTRUCTION

1. Poles and Towers	-	-
2. Substations and Transformers	-	3
3. Underground Systems	-	1
4. Telephone/Communications	-	-

C. UTILIZATION EQUIPMENT

1. Household Appliances	-	3
2. Commerical/Industrial Equipment	-	4
3. Portable Power Tools	-	1
4. Extension Cords	-	2
5. Welding Machines	1	-
6. Mobile Homes and Trailers	-	-
7. Signs	-	-

D. NON-ELECTRICAL EQUIPMENT

1. Cranes/Booms/Pickers	3	6
2. Ladders	-	-
3. Drilling Rig Equipment	-	2
4. Farm Equipment	2	3
5. Moving Buildings/Equipment	-	4
6. Boats	1	-
7. Others	-	5

ATTACHMENT (1)

ELECTRICAL ACCIDENTS INVESTIGATED BY THE ALBERTA ELECTRICAL PROTECTION BRANCH AND MUNICIPAL ELECTRICAL INSPECTION AUTHORITIES DURING THE PERIOD 1987 04 01 TO 1988 03 31

FATAL ACCIDENTS	OCCURRENCE
1987 07 01 Farmhand	Farmhand was electrocuted when he lifted an irrigation pipe to an almost vertical position contacting an overhead 14.4 kV power line.
1987 07 07 Welder	Welder received a fatal electric shock while connecting the cord ends together supplying a 600 V industrial welding machine.
1987 07 25 Victim	Victim was electrocuted when the metallic mast of his catamaran sail boat contacted a 14.4 kV overhead power line.
1987 07 26 Victim	Victim died after contacting 120/240 volt single phase overhead power conductors atop a windmill tower.
1988 01 20 Worker	Drilling company worker was electrocuted when he was steadying a radiator hanging from a winch line of a gin-pole truck and the poles contacted a 14.4 kV overhead power line.
1988 03 16 Swamper	Swamper received a fatal electric shock and burns when he was leaning against a truck with a radial arm boom and the truck boom was swung into an overhead 25 kV power line.
1988 03 16 Rig operator	Rig operator received fatal electrical shock and burns when he was standing on the ground operating the controls of a radial arm picker and the boom contacted an overhead 25 kV power line.

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NONFATAL ACCIDENTS	OCCURRENCE
1987 01 14 Electrical Apprentice	Electrical apprentice received severe electrical burns to both hands and 120 volt shock when he attempted to remove insulation from an energized BX cable.
1987 03 09 Electrician	Electrician received flash burns to his eyes when a fish tape contacted a conductor energized at 120 V.
1987 03 24 Maintenance man	Maintenance man received 3rd degree burns to his hands when he attempted to move a junction box containing conductors energized at 120/240 volts.
1987 03 25 Child	Child received an electrical shock and minor burns to hand while attempting to connect an ornamental lamp cord to a 120 V outlet.
1987 03 27 Electrician	Electrician received flash burns to his eyes when a short occurred in a MCC energized at 600 volts.
1987 03 28 Electrician	Electrician received minor burns to back of one hand and arm while working on a panel energized at 120/208 volts.
1987 04 06 Steam Engineer	Steam engineer received burns to his hand and face when he attempted to operate a switch rated at 240 V but was energized at 600 volts.
1987 04 11 Electrician	Electrician received serious burns to his body while working on a 277/480 V 4000 Amp breaker when the disconnect button on the breaker failed to operate and the breaker remained energized.
1987 05 04 Farmer	Farmer received an electric shock from an incorrectly connected 480 V 3 phase cord cap.

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NONFATAL ACCIDENTS	OCCURRENCE
1987 05 04 Meat Cutter	Meat cutter received a shock while holding a 120 V hog stunner in which an energized conductor was contacting the metal handle.
1987 05 08 Victim	Victim received a shock when a van hit a transformer power pole guy wire breaking the top of the pole causing the transformer to fall contacting the 14.4 kV line.
1987 05 12 Tool Push	Tool push received first degree burns to his hands when touching a service rig being moved under a 23 kV power line which contacted the overhead line.
1987 05 19 Farmer	Farmer received serious burns to his hands and face while attempting to change a fuse in a 30 Amp disconnect switch energized at 480 V.
1987 05 20 Farmer	Farmer received an electrical shock and burns to his hands and feet when the irrigation pipe he was working with contacted a 14.4 kV overhead power line.
1987 05 20 Farmer	Farmer received an electrical shock and burns to his hands and feet when the irrigation pipe he was working with contacted a 14.4 kV overhead power line.
1987 05 25 Operator	Operator received first degree burns to his wrist while attempting to make repairs to a 480 V energized motor starter, when the screwdriver shorted to the enclosure.
1987 05 29 Victim	Victim received electrical burns to hands and feet when he lifted a length of irrigation pipe upright and contacting a 15 kV overhead power line.
1987 05 30 Plumber Apprentice	Plumber apprentice received an electrical shock and severe burns to his hands when he contacted the energized metal bulb guard of a 120 V trouble light.
1987 06 04 Electrician	Electrician received third degree burns on right hand while removing a circuit breaker from a 120/208 volt panel when an electrical explosion took place.

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NONFATAL ACCIDENTS	OCCURRENCE
1987 06 08 Electrician	Electrician accidentally energized 347 lighting circuit conductors while on a ladder and received an electrical shock which caused him to fall to the floor.
1987 06 11 Roofer	Roofer received severe electrical shock and burns while standing on a garage roof and contacted both the neutral and energized conductor of a 14.4 kV line.
1987 06 15 Power Lineman	Power lineman received burns to forearm when a metal tool made contact with an energized overhead distribution conductor causing a fault to ground on a 120/208 V circuit.
1987 06 19 Power Lineman	Power lineman received severe burns to arm when a short circuit caused by a socket rachet handle contacting the energized 13.8 kV phase conductor in an underground transformer vault.
1987 06 19 Power Lineman	Power lineman was treated for smoke inhalation when a short circuit caused by a socket rachet handle contacting the energized 13.8 kV phase conductor in an underground transformer vault.
1987 06 19 Power Lineman	Power lineman was treated for smoke inhalation when a short circuit caused by a socket rachet handle contacting the energized 13.8 kV phase conductor in an underground transformer vault.
1987 06 17 Electrician	Electrician received flash burns across face and eyes when the fuse retention clips of a 600 V main switch fractured and shorted to ground while changing a 3000 amp fuse.
1987 06 24 Power Lineman	Power lineman received a severe electrical shock while opening a 120/240 V farm service economizer enclosure after a power outage.
1987 07 03 Electrician	Electrician received flash burns to both hands while testing equipment and a conductor shorted out to the back of the 480 volt switch enclosure.

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NONFATAL ACCIDENTS	OCCURRENCE
1987 07 03 Electrician	Electrician received an electric shock when the 950 volt test leads insulation of a high potential test instrument he was using broke down.
1987 07 07 Power Lineman	Power lineman received first and second degree burns to his arm while splicing a 14.4 kV cable in a trench when a separate cable splice in the same trench developed a fault.
1987 07 08 Power Lineman	Power lineman received burns to his face, neck and hands when he was conducting a voltage test on a 480 V meter socket and the voltmeter leads contacted the live terminal and the grounded cover causing a fault.
1987 07 12 Student Worker	Student worker received severe electrical burns to thighs, legs, feet and back while erecting an antenna and the antenna contacted a 14.4 kV power line.
1987 07 14 Cook	Cook received a shock and bruises while cleaning under a 240 V electric grill and contacted the energized terminals.
1987 07 25 Foreman	Railway car foreman received minor burns to left little finger and right forearm while attempting to remove an airline fitting in the vicinity of a number of 440 V cables.
1987 07 27 Power Electrician	Power electrician received first degree burns to left arm up to shoulder when a phase to ground fault occurred as a 14.4 kV cubical door was opened.
1987 07 27 Electrician	Electrician received second degree burns on right elbow, light burns on chests and left hand while conducting tests on a 480 volt relay at the tower box of a pivot irrigation unit and his elbow contacted two phases.
1987 08 05 Truck driver	Truck driver received minor burns on hand when his fuel truck was backed under a 120/240 volt overhead line to unload and contacted the line.

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NONFATAL ACCIDENTS	OCCURRENCE
1987 07 30 Worker	Worker received a shock and severe burns to hand and thumb when trying to start a portable 480 V 3 phase conveyor motor by means of an extension cord and attachment plug.
1987 08 07 Driller	Driller received severe second and third degree burns on neck, left calf and bottom of both feet while lifting the neutral over a loaded rig being moved under a 7.2 kV power line.
1987 08 27 Truck operator	Truck operator received burns to left hand while operating the controls of a tree planting device when the tree he was planting contacted an overhead 25 kV power line.
1987 08 31 Food Served	Food server received a shock when she touched a 208 V food wagon handle.
1987 09 06 Victim	Victim received first degree burns to left arm and both legs when he parachuted from an airplane and contacted a 14.4 kV power line.
1987 09 08 Swamper	Swamper received burns to both index fingers when the truck gin poles contacted a 14.4 kV power line while he was holding a wire rope attached to a gin pole.
1987 09 17 Janitor	Janitor received a 120 V electric shock while using an extension cord having an uninsulated splice and contacted the bare wire.
1987 09 25 Door Serviceman	Door serviceman received minor burns to both hands while attempting to remove conductor insulation with an uninsulated tool from conductors supplying a 240 V overhead door.
1987 10 09 Electrician	Electrician received second degree burns to fingers of right hand when he turned up the 240 V thermostat of an electric furnace in which the phase conductors were left contacting each other.

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NONFATAL ACCIDENTS	OCCURRENCE
1987 10 19 Maintenance Man	Maintenance man received electrical burns to his left hand while he attempted to change fuses in a 460 V motor disconnect switch which malfunctioned and remained energized when the switch handle was turned to the "off" position.
1987 10 21 Worker	Worker received burns to his left palm while holding a steel crane cable when the cable contacted a 13.8 kV overhead power line.
1987 10 27 Sales Clerk	Sales clerk received a shock causing numbness and pain in right hand when using a faulty ungrounded 120 V vacuum cleaner.
1987 11 11 Electrician	Electrician received minor burns to his back when an equipment ground conductor contacted an energized bus of a 400 amp, 600 volt MCC.
1987 12 04 Swamper	Swamper received a shock while guiding a load of sucker rods being unloaded from a truck semitrailer when the crane contacted a 14.4 kV power line.
1987 12 04 Truck Driver	Truck driver received burns to his finger tips and right foot while guiding a load of sucker rods being unloaded from a truck semitrailer when the crane contacted a 14.4 kV power line.
1987 12 07 Electrician	Electrician received second degree burns to both hands when installing the cover on an explosionproof box and the cover contacted a 3 phase 480 V terminal strip.
1987 12 08 Maintenance Worker	Maintenance worker received a shock when he removed the water meter in a residence.
1987 12 11 Rig Operator	Rig operator received burns to left hand and left foot with severe burns to right thigh when a rig guy line flipped into a 25 kV power line.
1987 12 11 Electrician	Electrician received minor burns to his right hand when he simultaneously cut two energized 125 V D.C. conductors which he thought were not energized.

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NONFATAL ACCIDENTS	OCCURRENCE
1987 12 15 Electrical Apprentice	First year apprentice received an electrical shock when connecting 347 volt lighting fixture to the supply conductors which were not supposed to be energized.
1988 01 20 Tree Trimmer	A tree trimmer received third degree burns to his right shoulder and hand when he contacted a 25 kV overhead power line while in an aerial bucket going over the top of a tree he was trimming.
1988 01 20 Swamper	Trucking company employee received serious electrical burns when he was steadying a radiator hanging from a winch line of a ginpole truck and the poles contacted a 14.4 kV overhead power line.
1988 01 22 Electrical Apprentice	Electrical apprentice received minor burns to left hand and cuts requiring stitches when he accidentally contacted energized 347 volt conductors of a fluorescent lighting fixture.
1988 01 28 Victim	Victim received minor burns to fingers and a shock when she contacted a 120 V refrigerator which became energized due to a broken door light switch.
1988 03 11 Oil Rig Worker	Oil rig worker received burns to left hand and right foot while stringing out guy wires for an oil derrick rig when one touched a 69 kV power line.
1988 03 15 Power Lineman	Power lineman received electrical shock and burns to left thumb when he picked up an energized 4160 V conductor which had been knocked down due to a minor car accident.

ATTACHMENT (2)

ELECTRICAL POWER LINE CONTACTS REPORTED TO THE ALBERTA ELECTRICAL PROTECTION BRANCH DURING THE PERIOD 1987 04 01 TO 1988 03 31

A total of 520 electrical power line contacts were reported to the Electrical Protection Branch during the period April 1, 1987 to March 31, 1988. The total includes 475 contacts with overhead power lines and 45 contacts with high voltage underground power cables.

Five fatalities and 22 injuries to persons resulted from these contacts. Following is a breakdown of the contacts, fatalities and injuries. The number of fatalities and injuries associated with each type of contact is noted.

TOTAL INCIDENTS	PERSON INJURY	PERSON FATALITY	TYPE OF CONTACT OR DAMAGE
			OVERHEAD SYSTEMS
93	4	3	Truck or track mounted equipment (booms, hoists, cranes, pickers, etc.)
87	2	-	Brushing or trimming trees
81	3	-	Vehicles out of control hitting guys, poles, etc.
77	2	-	Vehicles transporting high loads
69	-	-	Excavating or earth moving equipment
36	1	1	Farm equipment
9	2	-	Drilling and siesmic industry
7	1	-	Aircraft, Parachutes, kites, etc.
3	1	-	Antennas or communication towers
1	-	-	Ladders or scaffolds
12	5	1	Other inadvertent contacts by individuals
			UNDERGROUND SYSTEMS
35	1	-	Excavating equipment being utilized
10	-	-	Vehicles hitting transformers, pedestals, etc.

POWER LINE CONTACTS SUMMARY

Recorded periods are April 1 to March 31 of the following year.

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Contacts Reported	262	198	295	480	398	466	393	511	443	520
Overhead Contacts	186	156	251	420	359	415	355	442	338	475
Underground Contacts	76	*42	*44	*60	*39	*51	*38	*69	*55	*45
Fatalities (O/H Contacts)	8	2	9	11	6	1	1	7	5	5
Fatalities (U/G Contacts)	0	0	0	0	0	0	0	0	0	0
Injuries (O/H Contacts)	39	31	44	32	12	16	20	33	25	21
Injuries (U/G Contacts)	3	0	1	**4	**2	0	0	0	1	1

* contacts reported involve high voltage cables or equipment only

** includes one injury which occurred on a low voltage cable